IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Aloys Wobben
Application No.	:	10/506,944
Filed	:	April 28, 2005
For	:	SEPARATE NETWORK AND METHOD FOR OPERATING A SEPARATE NETWORK

Examiner	:	Adi Amrany
Art Unit	:	2836
Docket No.	:	970054.471USPC
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Mail Stop Appeal Brief - Patents
Commissioner for Patents
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Alexandria, VA 22313-1450

REPLY BRIEF

Commissioner for Patents:

This Reply Brief is in furtherance of the Notice of Appeal filed on December 2, 2009 and in response to the Examiner's Answer dated March 31, 2010.

ARGUMENT IN REPLY

The Examiner's Answer makes clear the improper basis of the rejections. The Examiner correctly admits that the primary reference relied upon in the rejection (Wichert) does not expressly disclose a dc device coupled to a dc bus bar of an isolated electrical network to detect the electrical power required in the ac network (Answer, p. 16) and is silent as to where load demand is detected in general (Answer, p. 28). However, the Examiner then makes unfounded assertions that (a) one skilled in the art would look to Da Ponte to modify Wichert simply because Wichert is silent regarding where to place a device that senses load demand (Answer, p. 18), or alternatively, (b) since there are only two buses, it would be obvious to try

locating the device on one bus, then the other, and determine which placement works better (Answer, p. 19). These two alternate assertions are insufficient to establish *prima facie* obviousness of the claims at issue and are addressed in turn below.

First, the Examiner correctly identifies that Wichert does not disclose where to sense power demand, but then improperly points to this deficiency as motivation to modify the energy systems disclosed in Wichert. The flaw in this reasoning can be illustrated by its possible application to any invention under Examination. In other words, an Examiner could supply a motivation for a missing teaching of a claim limitation from a primary reference in every patent application by simply reciting that the limitation is not taught by the primary reference (*i.e.*, the reference is "silent") and that it would be obvious to modify the primary reference to include such a feature in view of this silence. Here, there is no hint, suggestion or articulated rationale for modifying Wichert to include a dc device to directly sense power demand in an ac network absent Appellant's disclosure. Silence is not a motivation to modify.

Second, the Examiner suggests that there are only two buses, thus it would be obvious to try locating a device on both buses to sense power demand in the ac network. This statement oversimplifies the issue of where to sense power demand in an isolated electrical network and mischaracterizes the various energy systems described in Wichert. For example, the Examiner states that the art rejection relies mostly on Figure 1 of Wichert and as shown in that figure, the PV-Diesel Hybrid Energy System contemplates bi-directional power flow between a dc bus and an ac bus such that dc loads can be supplied with power from ac sources and ac loads can likewise be supplied with power from dc sources. Thus, while there are two bus bars shown, effective power sensing and power management is not simply a matter of choosing between sensing ac network demand via the ac bus or the dc bus. For example, a power demand sensed at the dc bus bar would also reflect demand from dc loads and thus could not accurately reflect power demand in an ac network. As another example, power sensing could be performed at each individual load device (including both ac and dc load devices) and/or individual power source devices (including both ac and dc power source devices), rather than at the illustrated bus bars. Moreover, according to the asserted modification of Wichert (in which dc loads are eliminated and the bi-directional inverter is replaced such that power flow is unidirectional to an ac network) power sensing could be performed by observing frequency in the ac network, which

Appellant disclosed as being a general method of monitoring load demand. *See* Substitute Specification, filed September 8, 2004, starting at last paragraph on page 5.[1] In such a method, the frequency of an isolated electrical network is an indicator for whether available power is sufficient to meet power demand. For an excess supply of power, the network frequency increases, whereas it falls in the case of too little power. Measuring the required power in the ac network by monitoring frequency is relatively easy and can be achieved with inexpensive sensor devices as the sensors must only be configured to measure the frequency of voltage and do not need to be adapted to the amount of power to be measured. In contrast, measuring the required power at the dc bus bar is relatively complex and costly because it requires the direct measurement of the produced power and the consumed power. A wind power installation can produce, for example, more than 1 MW of power[2] and it should become clear that measuring such immense power cannot be considered to be a simple or obvious feat. There is no easy and cheap way to measure power of such range. Consequently, the assertion that one skilled in the art would be motivated to disable all dc loads in Wichert, eliminate the bi-directional inverter to enable only unidirectional power flow to an isolated ac network, and use a costly direct dc sensing device at the upstream dc bus bar contrary to inexpensive conventional sensing methods is implausible. There is no hint or suggestion in any of the cited references to modify Wichert in such a manner or to directly sense all power demand in an isolated ac network on a dc bus bar as claimed. Rather, the proposed modification appears to stem from the impermissible use of hindsight using Appellant's disclosure as a blueprint.

For at least the reasons above, independent claims 1 and 19, all dependent claims thereof, are allowable over Wichert and the other cited references.

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[1] Further, it was known to those of skill in the art at the time of invention that power demand in an ac network may be advantageously monitored by observing the frequency of the network. *See, e.g.*, Heier, S., "Grid Integration of Wind Energy Conversion Systems Control and Supervision of Wind Power Plants," 1996, pp. 268-272, B.G. Teubner Stuttgart, Germany submitted in an IDS dated August 10, 2009 describing "isolated operation of wind power plants" starting at p. 268 and under the heading "5.2.3 load management" at p. 272 stating: "In order to account for the normal demands of electrically demanding consumers, generator voltage and frequency, and thus speed, should be kept almost constant, even in the partial-load range of the wind energy converter. For this the load must always be smaller than the power available from the wind. Thus the supplied consumers must be connected and disconnected according to the **frequency** (Figure 5.2.4)." (Emphasis added).

[2] *See* Substitute Specification, filed September 8, 2004, at page 5, first full paragraph (providing the example of 1.5 MW for one wind power installation and 10 MW for an array of several wind power installations).

Moreover, even if one were motivated to look to Da Ponte to modify the hybrid energy systems disclosed in Wichert as asserted (which they would not be), combining the teachings of Da Ponte with the modified hybrid energy system of Wichert would still fail to teach or suggest every limitation of each of independent claims 1 and 19, from which all other claims depend. In particular, the Examiner's Answer asserts that Da Ponte discloses that it is known to use a dc device to detect power required in an ac network; however, this characterization of Da Ponte is inaccurate. Rather, the asserted "dc device" of Da Ponte is a voltage sensor 18 which is used to monitor the voltage of an intermediate dc output VDC located at the output side of a decoupling dc-dc converter 12 and which is connected to energy storage device 28. *See, e.g.*, Da Ponte, Figure 3. In this manner, the voltage sensor 18 signal is directly indicative of a charge of energy storage device 28, not the power demand of an ac network. Voltage of the intermediate dc output VDC and hence energy storage device 28 is monitored such that power generated by a source 10 upstream of the dc-dc converter 12 can be adjusted when the voltage of the energy storage device 28 drops below a predetermined threshold value (*i.e.*, when the energy storage device 28 drains to a certain predetermined level). In contrast, the present claims are directed to an isolated network and a method for operational control of the same wherein the load demand in an ac network is measured directly on a dc bus bar coupled to the network. In this way, the demand for power in the ac network or an excess supply of power can be recognized and compensated immediately before fluctuations in the network power frequency can appear at all – a feat not possible with prior art energy systems wherein network power demand is sensed via network frequency.

In summary, the Examiner has failed to establish *prima facie* obviousness of the claims at issue. The Wichert reference does not teach or suggest measuring the load demand in an ac network by a device arranged at a dc bus. The remaining references do not cure Wichert's deficiency. Appellant therefore respectfully requests that the Examiner's rejections be reversed

and that the claims be allowed for the reasons stated herein as well as for the reasons in the Appeal Brief filed February 2, 2010.

Respectfully submitted,
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